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THOUGHTS ON TOTAL QUALITY MOVEMENT IN THE AERONAUTICAL
SYSTEMS DIVISION, WRIGHT-PATTERSON AIR FORCE BASE, OHIO

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ABSTRACT

Both quality and quantity are involved in any profitable activity. The previously held view about the relationship between quality and profitability is changing, yielding place to the forward-looking view that improvement in quality increases profitability. Strategy and vision are necessary to maintain constant improvement of quality until the improvement becomes total. Some aspects of total quality movement in the Aeronautical Systems Division (ASD) and its component organization, Aeronautical Equipment System Program Office (SPO) are briefly mentioned. The *sine qua non* to sustaining the technological superiority of ASD is the commitment to total quality.

1. INTRODUCTION

The story of human progress is in reality the quest for quality. In its quest, people sometimes have waged war, have pursued peace and common people sometimes have demonstrated uncommon virtue. Here is a very recent fragment of that story.

2. QUALITY, QUANTITY AND PROFITABILITY

Two essential prerequisites of any successful creative activity involving common good are quality and quantity. In modern parlance, quantity is nothing but productivity. Quality, like beauty or the redness of a flower, is abstract and is not quantifiable unless we define it in measurable terms. Quantity (number), on the other hand, is readily countable and can be subjected to various mathematical operations. An important characteristic of quality, I mean good quality, is that one is not satisfied with just a little. In other words, if the quality is good, one wants a lot of it. In this sense, quantity flows out of quality. The relationship between quality and quantity is a crucial one in the real world. It is not always one involving direct variation. That is, when quality increases, quantity (productivity) does not necessarily increase. The management leaders of this country and abroad used to hold the view, and some of them may still do, that an inverse relationship exists between quality and quantity. This lends credence to the view that when quality increases, productivity decreases. Now productivity and profitability are directly related so that when productivity increases profitability also increases. The net result according to this view is that as quality increases, profitability decreases. The leaders' aversion to improvement of quality is, therefore, understandable although not agreeable. Such a view is changing fast in the wake of the Japanese experience (1-3). In a conducive environment, the relationship between quality and quantity is one of direct variation; that is, when quality increases, quantity (productivity) also increases.

3. ACCEPTABLE QUALITY AND TOTAL QUALITY

A product or any service must be of acceptable quality. Such a view admits some deficiency in the product or service. A case in point is the use of Military Standard 105D for acceptance (4). The enlightened, current view is that a defective product or service is not profitable because it is not competitive. Hence, the emphasis on total quality.

4. CULTURE, STRATEGY AND VISION

When viewed in the light of the foregoing discussion, the need for a more conducive environment or change of environment (that is, change of culture) for the better, becomes a necessity, a requirement. Environment cannot be changed overnight. A long term plan (strategy) to bring about this change is required. One needs, therefore, a vision for an evolutionary change for a smooth transition. It is a journey of a thousand miles. Needless to say, such a journey begins with the first step.

5. HUMAN RESOURCE

The first step consists in recognizing the most important resource. Of all the resources of a nation, the human resource is the most important. Efficient management of this resource is vitally important. Isemann's statement is particularly noteworthy in this connection. Isemann (5) voiced the fond hope of this human resource individually as well as collectively when he stated: "Whatever you vividly imagine, ardently desire, sincerely believe and enthusiastically act upon must inevitably come to pass."

6. MILESTONES, MANDATES AND WORDS OF WISDOM

I have participated in at least fifteen approved activities related to total quality including the survey conducted by the Cumberland Group in the Aeronautical Equipment SPO on 11 August 1988. Besides, I have spent an uncounted number of hours privately in such activities. The underlying reason is my own mental predilection.

The report of the Packard Commission (6), its recommendations (7), the 1986 Goldwater-Nichols Defense Authorization Act (8), and other reports have resulted in an incontrovertible fact: Mr John A. Betti is now the Under Secretary of Defense for Acquisition. Mandates with regard to acquisition are expected to emanate from his office.

We also derive our mandates from our commanders. In stunning words, Lieutenant General John M. Loh has said, "Quality simply is a matter of survival—national survival" (9). In his letter of welcome to a recent seminar (10), in equally strong terms he has said, "I am personally committed to our quality

journey and convinced that unless both government and the defense industry change their culture, we will rapidly lose our leadership in defense technology and manufacturing." He has challenged the attendees of this seminar "to take the lead in the quest for continuous improvement and developing a total quality working environment." In his formal address at this seminar, General Loh has further stressed that "TQ is not a part-time thing. It is a full-time job."

This paper will remain grossly inadequate unless the contribution of one person is mentioned. Dr W. Edwards Deming, the "apprentice statistician," the "father of the third wave of industrial revolution," "one of the great American leaders of the post-war era and the voice of quality worldwide" has formulated a set of principles (3) which are as follows:

1. Create constancy of purpose for improvement of product and service.
2. Adopt the new philosophy.
3. Cease dependence on inspection to achieve quality.
4. End the practice of awarding business on the basis of price tag alone. Instead, minimize total cost by working with a single supplier.
5. Improve constantly and forever every process for planning, production, and service.
6. Institute training on the job.
7. Adopt and institute leadership.
8. Drive out fear.
9. Break down barriers between staff areas.
10. Eliminate slogans, exhortations, and targets for the work force.
11. Eliminate numerical quotas for the work force and numerical goals for management.
12. Remove barriers that rob people of pride of workmanship. Eliminate the annual rating or merit system.
13. Institute a vigorous program of education and self-improvement for everyone.
14. Put everybody in the company to work to accomplish the transformation.

Deming's point Number 14 above is highly significant. The transformation includes everybody and is required for survival. It should be clearly stated that any idea or activity inconsistent with "Deming's way" as formulated above will not produce the desired result and will only prolong the agony and the crisis.

7. PROFESSIONAL AND BUSINESS ETHICS

I must strike a note of caution. In our enthusiasm for efficient conduct of the business of all professional activities and to maintain our competitive position in the world, we must not forget

that professional ethics and business ethics are not identical. Dedicated professionals derive their inspiration from the practitioners of the learned professions. According to tradition, Ethics, Medicine and Law are known to be the learned professions. Preaching and Teaching belong to the category of Ethics. Cassel (11, 12) lists ten distinguishing features of a learned profession. The most important feature that distinguishes the learned professions from all other professions is the fact that the practitioners of the learned professions have clients or customers who are already handicapped and vulnerable. The clients or customers are invariably sick and or badly in need of help. These practitioners, therefore, have to be imbued with a strong sense of ethics and morality to overcome the many temptations that may possibly afflict all other members of the society. Lundberg (11) in his editorial discusses the relationship of business and professionalism from his vantage point of medicine. His views are applicable to professions in general, other learned professions in particular and should be widely disseminated. He suggests that there are natural tensions between the business and professional ethics. As long as the tensions are in a balanced state, the whole profession profile is stable and this may be represented by the untitled rocking horse model shown in figure 1. According to him, the tensions are in an unbalanced state at the present time and the rocking horse is in danger of tipping over as shown in figure 2. In figure 3, he suggests rescue of the professions. I am optimistic because, as quoted earlier, I have Isemann's profound realization to fall back upon (5).

8. CONCLUSION

Much work remains to be done. There is no substitute for excellence and total quality. I conclude by making one prediction. The thinkers and visionaries of the world will not permit this country to be and continue to be anything but great.

9. ACKNOWLEDGMENT

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ROCKING HORSE MODEL OF PRACTITIONERS OF LEARNED PROFESSIONS

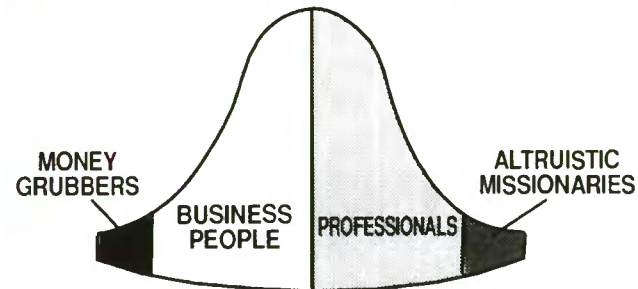


FIG 1 - THE NATURAL TENSIONS THAT ARE ALWAYS THERE
BETWEEN THE BUSINESS AND PROFESSIONAL ETHICS
(ARTWORK PROVIDED BY BOON AI TAN)

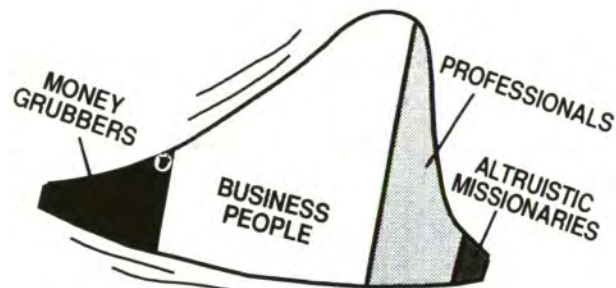


FIG 2 - 1990 THE BUSINESS APPROACH IS
PREDOMINATING AND THREATENS
TO TIP THE PROFESSION OVER

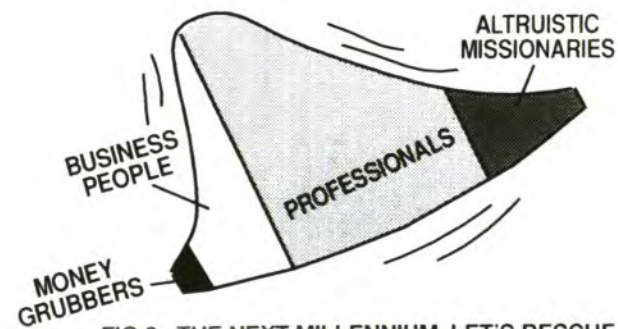


FIG 3 - THE NEXT MILLENNIUM, LET'S RESCUE
OUR LEARNED PROFESSIONS

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